

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 22-24, 26-33, and 35-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hubbard et al (US 5,125,992) and Schmitt (US 3,632,385) further in view of Scott (US 5,154,373) and Bennett (US 6,797,251).
3. It is noted that Bennett is considered to be entitled to the provisional date of 12/13/2000, while the current claimed invention is considered to only be entitled to the continuation date of (8/31/2001), wherein the CIP discloses a metal matrix material and does not fully support the currently claimed invention. Therefore, Bennett is considered to be properly cited art.
4. Hubbard teaches a foam material coated with material intended to absorb electromagnetic radiation. The foam material can comprise polystyrene loaded with carbon (column 1 line 10-20), polyurethane foams (column 8), or Syntactic foams (column 12 line 40-45) which is considered to meet the claim limitation requiring "carbon foam." The sheets of foam material can be coated with a multiple layers of material comprising aluminum or Inconel (column 5 lines 5-10, 36-41). Further, overcoatings of dielectric material including epoxy resins (meeting the claim limitations of claim 26), or

silicon oxide (glass forming compounds as claimed) can be added affording greater product stability and protection from exposure to degrading chemicals or environments (column 6 line 35-50).

5. Hubbard fails to expressly teach carbonizing the foam.
6. Further, Schmitt (US 3,632,385) teaches using a carbon foam produced from carbonizing resins used in a structural material designed to have structural integrity in high temperature applications (see abstract).
7. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide "carbonized" carbon foam, as in Schmitt, as a substitution of appropriate materials known to be available to one of ordinary skill, and because Schmitt teaches carbonizing resins used in a structural material designed to have structural integrity in high temperature applications which would be expected to be advantageous in Hubbard's electromagnetic radiation absorber. No patentable distinction is seen.
8. Hubbard and Schmitt are silent as to the use of the glass forming oxidation inhibitors incorporated into the foam core.
9. Scott teaches a structural material having a foam core and a laminate outer layer similar to Hubbard (see figure 1 and abstract).
10. The foam of Scott can comprise a graphite (carbon) additives with a silicon carbide (considered a glass forming metal carbide as claimed) which is also coated with metal or Inconel facesheets (see column 4 lines 40-50 and claims 1 and 7-8).

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11. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a silicon carbide coating instead of the silicon oxide coating taught by Hubbard and expect to form a heat resistant protective coating or to provide silicon oxide as an additive in the foam composite of Scott to impart protection from chemical degrading imparting like properties in the coatings as additives as are imparted as coatings or vice versa. No patentable distinction is seen.

12. The foam material of Scott has a density up to 10 lbs. per cubic foot (0.16 g/cc) overlapping applicant's claimed range (see column 3 lines 25-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a foam within applicant's claimed range given the teaching of overlapping range of Scott. No patentable distinction is seen.

13. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the foam of Scott as a substitute, or in addition to, the foam of Hubbard because both inventions want heat resistance, high strength, and chemical resistance and the (glass forming) ceramic foam has advantages over polystyrene and polyurethanes (taught by Hubbard) in that they are structurally stronger and more heat resistant and when provided with a mixture of loaded carbon material of Hubbard and/or the graphite additives of Scott the foam would be expected to form an ideal composite material. It is obvious to provide a mixture of materials known to be suitable for the same purpose. No patentable distinction is seen.

14. Further see Bennett for methods of forming a carbon foam from raw coal (column 3, as required by applicant's claim 22) and examples in Bennett for demonstrating it

would be known in the art (based on the teachings of Bennett) to provide a raw coal precursor and ceramic precursor and foam both materials together to form a composite material. No patentable distinction is seen.

15. Regarding claims 29-30 and 40-41, it would further be obvious to provide aluminum or Inconel as an additive to the carbon foam since they are taught by both references to be facing sheets in order to further enhance the ability of Hubbard to absorb electromagnetic radiation.

16. Regarding claims 27-28, the foamed ceramic of Scott would be considered an inert solid material as claimed and inherently contain ceramic particles as constituent material. No patentable distinction is seen.

17. Regarding claim 24, it would have been obvious to one of ordinary skill to provide a foam having a compressive strength up to about 6000 psi in order to provide a structurally stronger foam that provides greater support and insulating properties. No patentable distinction is seen.

### ***Response to Arguments***

18. Applicant's arguments filed 2/5/2010 have been fully considered but they are not persuasive.

19. It is noted that Bennett is considered to be entitled to the provisional date of 12/13/2000, while the current claimed invention is considered to only be entitled to the continuation date of (8/31/2001), wherein the CIP discloses a metal matrix material and

does not fully support the currently claimed invention. Therefore, Bennett is considered to be properly cited art.

20. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

21. Applicant's arguments with respect to the pending claims have been considered but are otherwise moot in view of the new ground(s) of rejection.

### ***Conclusion***

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MILLER whose telephone number is (571)272-1534. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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